

REMARKS

Claims 1-20 are pending, of which claims 1, 19, and 20 are in independent form. Claims 1-20 stand rejected. The applicant has amended claims 1, 19, and 20 and respectfully requests reconsideration in view of the amendment and the following remarks.

SECTION 102 REJECTIONS

Claim 1 stands rejected under 35 U.S.C. Section 102(b) as being anticipated by U.S. Patent No. 5,921,775 to Buchanan ("Buchanan"). The applicant has amended claim 1, which now recites an endodontic instrument having one or more flutes, "wherein at least one flute includes a cutting edge that is the leading edge of the flute when the instrument is rotated in a first direction of rotation about the longitudinal axis so that the instrument is configured to cut, without requiring force to be applied to the instrument in an end-to-tip longitudinal direction, when the shaft is rotated in the first direction of rotation . . . , and wherein the at least one flute spirals around the shaft in the end-to-tip longitudinal direction and in a second direction of rotation that is opposite from the first direction of rotation." As can be seen, the cited limitation requires that (i) the at least one flute to spiral around the shaft in a direction that is opposite the cutting direction and (ii) the instrument cuts without requiring an application of force along the longitudinal axis in an end-to-tip direction.

The applicant respectfully submits that Buchanan does not disclose or suggest the above-cited limitation of claim 1. Buchanan discloses a handheld file with cutting flutes spiraling in the reverse direction. *See FIG. 4G; and col. 15, lines 4-12.* Buchanan specifies that this feature allows dentists who are used to filing in the clockwise direction to rotate the file in the clockwise direction and still gain the advantages of apically directed counter-rotary filing motions. *See id.* Buchanan does not explicitly explain what is meant by apically-directed and counter-rotary. However, Buchanan suggests that an apically-directed counter-rotary motion is one that requires an application of apical force, i.e., force along the longitudinal axis in an end-to-tip direction, and counter-rotary force, i.e., torsional force in the counter-clockwise direction. *See col. 8, lines 48-63* (discussing a pair-shaped handle that gets thicker in the apical

direction thereby suggesting that the apical direction is an end-to-tip direction); *and* col. 3, line 65 - col. 4, line 7 (explaining that apically-directed counter-rotary filing requires an application of apical force to keep the instrument from backing out thereby suggesting that the apical direction is an end-to-tip direction). The applicant respectfully submits that the instrument shown in FIG. 4G of Buchanan requires the dentist to push while rotating in order for the instrument to cut. This requirement makes Buchanan's instrument different from and an instrument that is in accordance with claim 1, which, as discussed above, requires that the instrument be able to cut without an application of force along the longitudinal axis in an end-to-tip direction. The difference is significant. The requirement of apical force can be disadvantageous as apical force can subject the tooth being worked to stresses that result in breakage of the tooth. Buchanan's instrument suffers from this disadvantage while an instrument in accordance with claim 1 does not.

The Examiner does not contend that the other cited references disclose a reverse flute, which they must in order to anticipate or make obvious claim 1. The applicant respectfully submits that these other references, indeed, do not do so. For at least the above reasons, claim 1 and claims 2-18, which depend from claim 1, should be allowed.

Claim 19 stands rejected under 35 U.S.C. Section 102(b) as being anticipated by Buchanan. The applicant has amended claim 19, which now recites an endodontic instrument, "wherein at least one flute includes a cutting edge that is the leading edge of the flute when the instrument is rotated in a first direction of rotation about the longitudinal axis so that the instrument is configured to cut, without requiring the instrument to be threaded into a material to be cut, when the shaft is rotated in the first direction of rotation . . . , and wherein the at least one flute is situated to wrap around the shaft in an end-to-tip longitudinal direction and in a second direction of rotation that is opposite from the first direction of rotation." As can be seen, the cited limitation of claim 19 requires that (i) the at least one flute to spiral around the shaft in a direction that is opposite the cutting direction, and (ii) the instrument cuts without requiring the instrument to be threaded in the material to be cut.

Buchanan does not disclose or suggest the limitation of claim 19. The applicant respectfully submits that to cut, Buchanan's instrument requires rotation in one direction to thread into the tooth being worked and then rotation in the other direction while applying apical force. *See, e.g.*, col. 3, line 65 – col. 4, line 7 (explaining the mechanism of apically-directed counter-rotary filing). The requirement of threading makes Buchanan's instrument different from an instrument in accordance with claim 19, and the difference is significant because the requirement of threading disadvantageously subjects the tooth being worked to the risk of binding, i.e., when the instrument acts as a screw, binds with the tooth, and gets stuck. An instrument in accordance with the claim 19 does not suffer from this disadvantage. Thus, the applicant respectfully submits that Buchanan does not disclose or suggest the cited limitation of claim 19, and, for at least this reason, claim 19 should be allowed.

Claim 20 stands rejected under 35 U.S.C. Section 102(b) as being anticipated by Buchanan. The applicant has amended claim 20, which now recites an endodontic instrument, “wherein the instrument is a rotary type instrument and at least one flute includes a cutting edge that is the leading edge of the flute when the instrument is rotated in a first direction of rotation about the longitudinal axis so that the instrument is configured to cut when the shaft is rotated in the first direction of rotation . . . , wherein the instrument is not required to be rotated in a reciprocating manner in order to cut, and wherein the at least one flute is situated to wrap around the shaft in an end-to-tip longitudinal direction and in a second direction of rotation that is opposite from the first direction of rotation.” As can be seen, the cited limitation of claim 19 requires that (i) the instrument be rotary type, (ii) the at least one flute to spiral around the shaft in a direction that is opposite the cutting direction, and (iii) the instrument cuts without requiring the instrument to be rotated in a reciprocating manner.

Buchanan does not disclose or suggest the limitation of claim 20. FIG. 4G shows a hand type instrument. The applicant respectfully submits that Buchanan fails to teach that the instrument shown in FIG. 4G can be a rotary type instrument. Moreover, as discussed above, Buchanan states that in apically-directed counter-rotary filing requires rotation in one direction to thread and rotation in the other direction (while applying apical force) to cut. The rotation and

counter rotation action constitutes rotation in a reciprocating manner. This requirement of reciprocating rotation makes Buchanan's instrument different from an instrument in accordance with claim 20. The difference is significant because to adapt Buchanan's instrument to become a rotary type instrument, one must design a machine that includes a mechanism for providing reciprocating rotation. No such mechanism is needed with the instrument in accordance with claim 20 because such an instrument does not require reciprocating rotation action to cut. Thus, the applicant respectfully submits that Buchanan does not disclose or suggest the cited limitation of claim 20, and, for at least this reason, claim 20 should be allowed.

### SECTION 103 REJECTIONS

Claims 2 and 19 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over Buchanan in view of European Patent No. EP120542 A to Fluckiger. Claim 3 stands rejected under 35 U.S.C. Section 103(a) as being unpatentable over Buchanan in view of U.S. Patent No. 6,106,295 to Johnson. Claims 7 and 9 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over Buchanan in view of U.S. Patent No. 4,934,934 to Arpaio, Jr. et al. ("Arpaio '934"). Claim 8 stands rejected under 35 U.S.C. Section 103(a) as being unpatentable over Buchanan in view of Arpaio '934 as applied to claim 7, and further in view of U.S. Patent No. 6,299,445 to Garman. Claims 17 and 18 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over Buchanan in view of U.S. Patent No. 4,538,989 to Arpaio, Jr. et al. The above claims depend from claim 1, which, as discussed above, includes a limitation not disclosed or suggested by any of the above references. These claims thus should be allowed for at least the reasons presented for claim 1.

### DRAWING OBJECTIONS

The Examiner objects to FIG. 2A because it lacks the reference number 202 mentioned in the description. The applicant respectfully submits a replacement sheet of drawings that includes the missing reference number.

The Examiner objects to FIG. 9A because it lacks the reference number 902 mentioned in the description. The Examiner states that the applicant must either submit a replacement sheet or

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Serial No. : 10/764,337  
Filed : January 22, 2004  
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a proposed drawing correction. The applicant respectfully submits a sheet of a proposed drawing correction, in which the missing reference number 902 has been inserted.

The Examiner objects to FIG. 8B because it includes a reference number 838, which is not mentioned in the specification. The applicant respectfully submits a replacement sheet of drawings from which the superfluous reference number has been deleted.

The Examiner objects to FIG. 12 because it includes reference numbers 1202 and 1204, which are not mentioned in the specification. The applicant has amended the specification to include the reference numbers at issue.

#### CONCLUSION

The applicant respectfully requests that all pending claims be allowed. Enclosed is a \$180 check for the enclosed information disclosure statement. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: December 8, 2004

  
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Amendments to the Drawings:

The attached replacement sheet 1 includes changes to FIG. 2A and replaces the original sheet including FIGS. 1A, 1B, 2A, and 2B. In particular, the changes are (i) an insertion of the reference number 202 to refer to the shaft of the instrument 200 shown and (ii) a relocation of each of the reference lines for reference numbers 208 and 210, which, as indicated in the specification at page 2, lines 12-23, refer to flutes on either side of the helical structure 218.

The attached sheet 11 includes a proposed change to FIG. 9A. The proposed change is an insertion of the reference number 902 to refer to the instrument shown in the figure.

The attached replacement sheet 6 of drawings includes a change to FIG. 8B and replaces the original sheet including FIGS. 8A and 8B. In particular, the change is a deletion of the reference number 838, which is not mentioned in the specification.

